

Remarks

Claims 1-10 inclusive have been canceled.

New claims 11-14 are method claims.

The title has been amended to more accurately reflect the new claims. The specification has been amended to reference the prior parent application as a related application.

Upon the filing of this Continuation Application and after the entry of this Preliminary Amendment, please abandon the parent application No. 10/015,513.

To assist the Examiner, applicants' describe the prior art and applicants' invention below and to more fully distinguish applicants' invention from the art cited during the prosecution of the parent application.

Nishimura (US 5,666,346) is distinguished in the background of applicants' specification (page 5, lines 11-13). The intermediate layer 12 (Fig. 3B) of Nishimura is used during readback when the laser light 8 heats it to its antiferromagnetic-to-ferromagnetic transition temperature. This enables the previously recorded bit in memory layer 13 to be coupled into the reproducing layer 11 so that its Kerr rotation can be detected by the reflected laser light. Unlike in applicants' new claim 11, there is no magnetic write field applied to the intermediate layer when it is ferromagnetically coupled to the memory layer, i.e., in applicants' scheme the layer structure is heated during writing, but no heating is required for readback of the bits from the ferromagnetic recording layer.

Kikitsu (US Patent App 2001/0051287 A1) teaches use of a switching layer 63 (Figs. 9-10) that is heated *above* its Curie temperature so that it is paramagnetic when the write field is applied. At the write temperature T_W , which is above the temperature T_{CE} that exchange coupling disappears (Fig. 10D), the switching layer 63 and recording layer 64 are not exchange coupled (paragraph 0153). In contrast, when the write field is applied in applicants' method, the switching layer and recording layer are ferromagnetically exchange coupled.

Takao (U.S. Patent App 2002/0181337 A1) shows in Figs. 1 and 5A-5B a recording layer 5 and an antiferromagnetic layer 3. The NiFe layer 2 is not the recording layer, but the recording *auxiliary* layer that is a soft magnetization film (paragraph 0074) that does not

have a permanent magnetization. To record, the recording layer 5 is heated to "not less than the Curie temperature T_C of the recording layer 5" (paragraph 0086) when the write field is applied. There is no requirement that the antiferromagnetic layer 3 switch to a ferromagnetic state during the write process. In contrast, in applicants' method the temperature must be below the Curie temperature of the recording layer and above the transition temperature of the antiferromagnetic layer so that the antiferromagnetic layer becomes ferromagnetic and thus couples with the recording layer when the write field is applied.

In view of the above comments distinguishing applicants' method from the methods of the cited references, new claims 11-14 in this continuation application are believed allowable. The Examiner is invited to call applicants' undersigned attorney if a telephone conference will expedite the prosecution of this application.

Respectfully submitted,

Eric E. Fullerton et al.

By 

Thomas R. Berthold (#28,689)
Attorney for Applicants
Hitachi Global Storage Technologies
Intellectual Property Law
5600 Cottle Road (NHGB/014-2)
San Jose, CA 95193
Phone (408) 256-3926